What we claim is:

1. A method of curing a photo-polymerizable dental material with light energy from a light source, comprising the steps of:

exposing at least one selected segment of the material to the light energy while selectively limiting exposure of at least one substantially adjacent segment of the material to the light energy.

2. A method of curing as in claim 1, wherein said step of exposing a selected segment of the material to light energy while selectively limiting exposure of at least one substantially adjacent segment of the material to the light energy includes the steps of fitting the light source with a mask.

3. A method of curing as in claim 2, wherein said mask has at least one first portion that is substantially transmissive of the spectrum of light required for curing the material.

4. A method as in claim 3, wherein said mask has at least one second portion which is non-transmissive of at least a portion of the spectrum of light required for curing the material.

5. A method of curing as in claim 4, wherein said second portion of said mask is substantially non-transmissive of the spectrum of light required to cure the material.

6. A method of curing as in claim 1, wherein said steps of exposing at least one selected segment of the material to the light energy while selectively limiting exposure of at least one substantially adjacent segment of the material to the light energy, includes interposing a mask between the light source and the material.

7. A method of curing as in claim 1, wherein said step of selectively limiting exposure of a substantially adjacent segment of the material to the light energy includes preventing at least a portion of the light energy from reaching said adjacent segment.

8. A method of curing as in claim 1, wherein said step of exposing a selected segment of the material to the light energy includes exposing a plurality of selected segments of the material to the light energy.

9. A method of curing as in claim 1, wherein said step of selectively limiting exposure of at least one substantially adjacent segment of the material to the light energy includes selectively limiting exposure of a plurality of adjacent segments of the material to the light energy.

10. A method of curing a photo-polymerizable material comprising the steps of:

exposing at least one selected segment of the material to light energy while selectively limiting exposure of at least one substantially adjacent segment of the material to said light energy,

wherein said step of exposing at least one selected segment of the material to said light energy includes directing light energy from a light source to said selected segment with a light guide comprising a plurality of light-transmitting fiber optic strands and a plurality of light-limiting strands, wherein said light-transmitting strands and said light limiting strands are arranged in a preselected pattern.

11. A method of curing a photo-polymerizable material comprising the steps of:

exposing at least one selected segment of the material to light energy while selectively limiting exposure of at least one substantially adjacent segment of the material to said light energy,

wherein said step of exposing at least one selected segment of the material to said light energy includes directing light energy from a plurality of solid state, light emitting devices toward the material, wherein said light-emitting devices are arranged in a preselected pattern such that said at least one adjacent segment of the material is not directly exposed to light.

12. A method of curing as in claim 11, wherein said solid state light emitting device is a light emitting diode or a laser.

13. A method of curing a photo-polymerizable material comprising the steps of:

exposing at least one selected segment of the material to light energy while selectively limiting exposure of at least one substantially adjacent segment of the material to said light energy,

wherein said step of exposing at least one selected segment of the material to said light energy includes directing light energy from a plurality of solid state light-emitting devices like toward the material, wherein at least one of said plurality of light emitting diodes can be selectively controlled to an on state such that it emits light energy, to an off state such that it does not emit light energy.

14. A method of curing as in claim 13, wherein said solid state light emitting device is a light-emitting diode or a laser.

15. A method of curing a photo-polymerizable material comprising the steps of: exposing at least one selected segment of the material to light energy while selectively limiting exposure of at least one substantially adjacent segment of the material to said light energy,

wherein said step of exposing at least one selected segment of the material to said light energy includes directing light energy from a plurality of solid state light-emitting devices toward the material, wherein at least one of said plurality of light emitting diodes emits light of a different wavelength than at least one other of said plurality of light emitting diodes.

16. A method of curing as in claim 15, wherein said solid state light emitting device is a light-emitting diode or a laser diode.

17. A method of reducing polymerization-induced stress in a photo-polymerizable material cured with light energy from a light source, comprising the steps of:

exposing at least one selected segment of the material to the light energy while selectively limiting exposure of at least one substantially adjacent segment of the material to the light energy.

18. A method of reducing the shrinkage rate of a photo-polymerizable material during curing of the material with light energy from a light source, comprising the steps of:

exposing at least one selected segment of the material to the light energy while selectively limiting exposure of at least one substantially adjacent segment of the material to the light energy.

19. A method of curing a photo-polymerizable material with light energy from a plurality of light sources, comprising the steps of:

exposing at least one selected segment of the material to the light energy while selectively limiting exposure of at least one substantially adjacent segment of the material to the light energy, by selectively controlling at least one of the plurality of light sources from an on state wherein light energy is emitted, to an off state wherein light energy is not emitted.

20. A method of curing a photo-polymerizable material with light energy from a plurality of light sources, comprising the steps of:

selectively exposing segments of the material to different light energy levels by controlling at least one of the plurality of light sources from an on state wherein light energy is emitted, to an off state wherein light energy is not emitted.

21. A method of curing a photo-polymerizable material with light energy from a plurality of light sources, comprising the steps of:

exposing different segments of the material to light energy in a preselected sequence by controlling at least one of the plurality of light sources from an on state wherein light energy is emitted, to an off state wherein light energy is not emitted.

22. A method of curing a photo-polymerizable material with light energy, comprising the steps of:

providing at least two light sources, each of said light sources emitting a different wavelength of light, and selectively exposing the material to light from said light sources.

23. A method of curing as in claim 19, wherein a first segment of said material is first exposed to one of said plurality of light sources, followed

by exposure to a second of said plurality of light sources having said different wavelength of light.

24. A light guide for directing light to a photocurable material, comprising a mask to limit the transmission of light to a selected portion of the material.

25. A mask for use in curing a photocurable material, comprising a mask pattern having at least one light limiting block, wherein said mask pattern block substantially prevents at least a portion of the light spectrum required to cure the material from directly reaching the surface of the material to be cured.